KING COUNTY CONVEYANCE SYSTEM IMPROVEMENT PROJECT

MILL CREEK / GREEN RIVER SUBREGIONAL PLANNING AREA

TASK 230 REPORT

EXISTING CONDITIONS

February 2000

KING COUNTY
Department of Natural Resources

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INTRODUCTION

This section characterizes the physical and natural environment, known sensitive areas, and the general natural resources located in the Mill Creek/Green River (MC/GR) Subregional Planning Area. This planning and project identification effort includes a description of geological, biological, and other environmentally sensitive conditions in the planning area that may affect construction of conveyance systems to extend current service capabilities. Current and future land use and growth conditions in the planning area are also briefly identified. Information used to prepare this section includes relevant data from the cities of Auburn, Algona, Black Diamond, Covington, Kent, Maple Valley, and Pacific; Soos Creek Water and Sewer District; King and Pierce counties; Puget Sound Regional Council; and various consultant reports.

NATURAL ENVIRONMENT

King County requires protection of the natural environment and public health and safety in the county through its Environmental Sensitive Areas regulations (KCC 21A.24). The sensitive areas regulations contain development standards regarding wetlands; streams; erosion, flood, and seismic hazard areas; and other environmental sensitive areas. Local jurisdictions in King County are also required to develop and implement sensitive areas ordinances within their municipal boundaries. Wastewater system planning and construction of conveyance systems and facilities in the MC/GR must occur in accordance with the requirements of these regulations and ordinances. A composite of sensitive areas identified by King County in the MC/GR is shown in Figure 230-1. Sensitive areas and other natural resources in the MC/GR are discussed in the sections below.

EARTH/GEOLOGICAL FEATURES

TOPOGRAPHY AND SOILS

Topography varies throughout the MC/GR. The majority of the western part of the planning area is flat, especially in western Auburn and Kent, the Green River valley, Algona, and Pacific areas. East and north of the Green and White rivers, elevations on the undulatory terrain of the Soos Creek Plateau are generally several hundred feet higher than elevations in the river valleys. The planning area also includes some steep slopes and hillsides, especially along the fringes of the valleys of the Green River, White River, and Big Soos Creek. Steep slopes are also found on Kent's East Hill and West Hill. Planning area geology and soils, including seismic-, landslide-, and erosion-prone sensitive areas, are shown in Figure 230-2.

The Green River meanders through the western portion of the MC/GR, eroding the valley walls at some points while depositing gravel bars and overbank sediments in others; in places, the hill slopes fail by landsliding and are cut by streams flowing off the plateaus.

The southwestern MC/GR in the Pacific/Algona vicinity is located in an area of diverse topography, ranging from forested hills to flat prairie and peat bogs. The majority of the area lies in a valley and is generally very flat, with elevations on the valley floor ranging from approximately 50 to 90 feet above mean sea level. The area's landscape is the result of glacial activity that left thick glacial recessional outwash deposits. The predominant soil type in the area is composed of poorly draining, alluvial post-glacial deposits (Pacific 1991).

Geology in the Soos Creek area is largely the result of prehistoric glacial activity and subsequent ice retreats. The Alderwood series is the most common type in the area. This soil series includes moderately well drained gravelly sandy loams that are 24 to 40 inches deep over consolidated glacial till. The Everett series is the next most prevalent soil type in this area, but is much less common than the Alderwood series. Everett soils are gravelly and are underlain by sand and

gravel. In certain areas, primarily basins and lowlands, organic materials such as peat occur in depths up to 10 feet (SCWSD 1996).

The southeastern MC/GR in the Black Diamond area consists largely of the plateau north of the Green River, ranging from 300 to 750 feet in elevation. Considerable horizontal and vertical variation in subsurface geology, subsoil, and foundation conditions can be expected. Extensive consolidated glacial deposits of cemented till, firm clays, and residual deposits of morainal sands and gravels and recessional outwash generally underlie the shallow surface soil mantle of the uplands. Much of the Black Diamond area was historically used for coal, sand, and gravel mining; mineral, sand, and gravel mining continue today. Peat deposits have accumulated along the courses of small creeks in the upland areas and in many of the local wetland areas. Except for the area with peat deposits, the soils in this area should be generally favorable for pipeline bedding (Metro 1970).

EROSION HAZARDS

The susceptibility of any soil type to erosion depends on the physical and chemical characteristics of the soil, its vegetative cover, slope length and gradient, intensity of rainfall, and the velocity of surface water runoff. Erosion hazard areas are scattered throughout the MC/GR. These areas include along much of the north and east sides of the Green River valley; west of Mill Creek in Auburn on the valley slopes; along Big Soos Creek and SR 18 east of Kent; in the Pipe/Lucerne and Wilderness lakes vicinity; along the White River to the south, and in smaller areas throughout the planning area (see Figure 230-2). However, most of the larger erosion areas in this part of the region are located outside of the MC/GR.

Activities associated with clearing, grading, and construction can potentially contribute to erosion and sedimentation. Proper erosion and sedimentation control measures should be implemented during construction to minimize construction impacts. Following construction, the site should be stabilized and revegetated, and drainage systems should be installed to further minimize any long-term erosion and sedimentation and related impacts.

LANDSLIDE HAZARDS

Landslide hazard areas are areas that have slopes greater than 15 percent, impermeable soils, and groundwater seepage. Areas with a history of rapid stream incision, stream bank erosion, or undercutting by wave action, as well as areas with a geological history that would indicate landslide susceptibility, are also designated as landslide hazard areas. Landslide hazard areas in the MC/GR are generally located along water bodies and steep slopes. These areas include west of Mill Creek in Auburn on the valley slopes; on the east slopes of the Green River valley; along Big Soos Creek and SR 18 east of Kent and further north along Soos Creek in the Gary Grant Soos Creek Park vicinity; and in the Maple Valley area south and west of the Cedar River (see Figure 230-2).

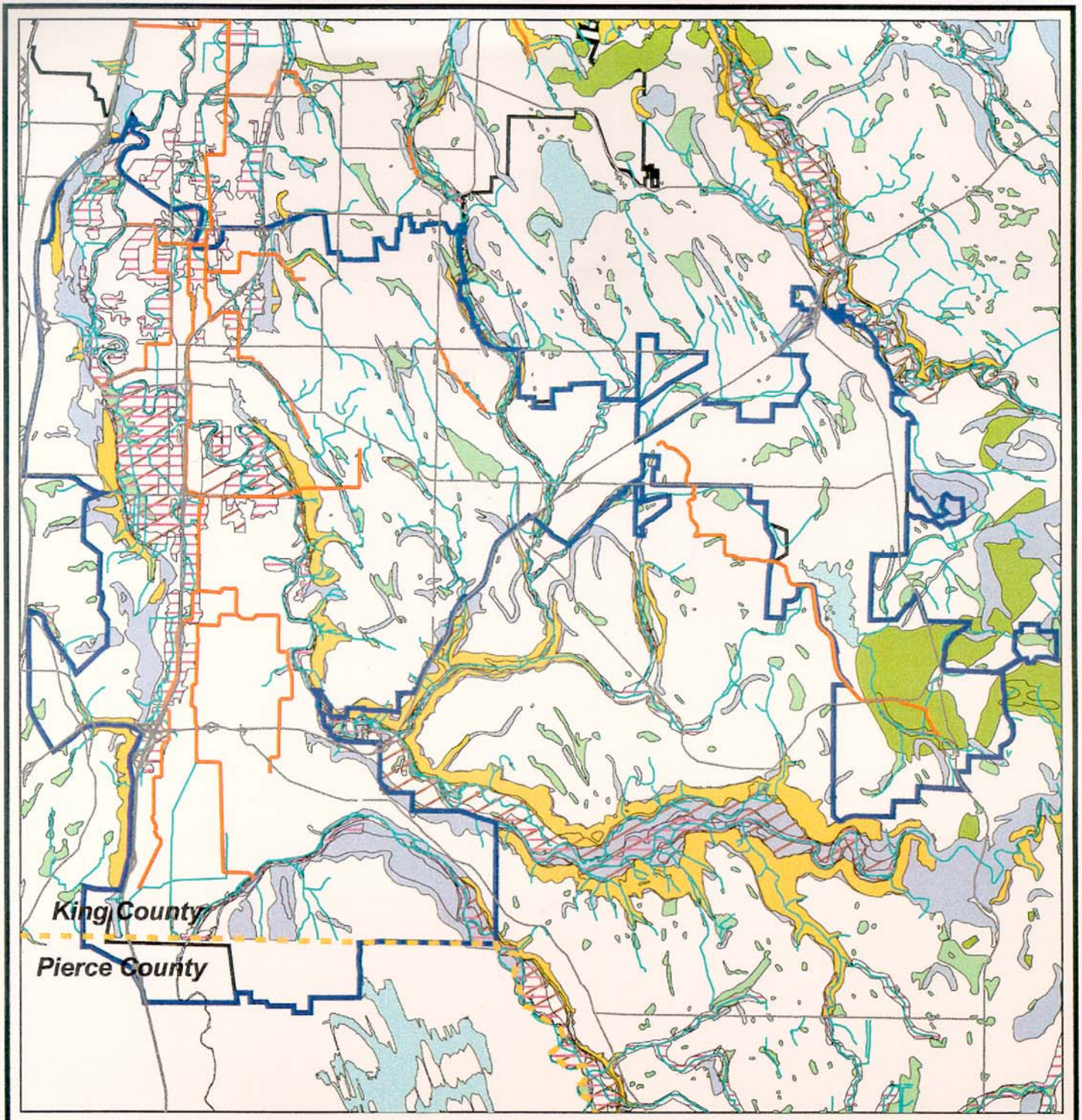

Figure 230 - 1
Sensitive Areas in the MC/GR

Legend

- County Boundaries
- KC Conveyance Lines
- MC/GR Boundary
- Streams
- Flood plain
- Seismic Hazard Areas
- Slide Hazard Areas
- Erosion Areas
- Coalmine Hazard Areas
- SAO Wetland

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KING COUNTY
Department of Natural Resources

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December 22, 1999

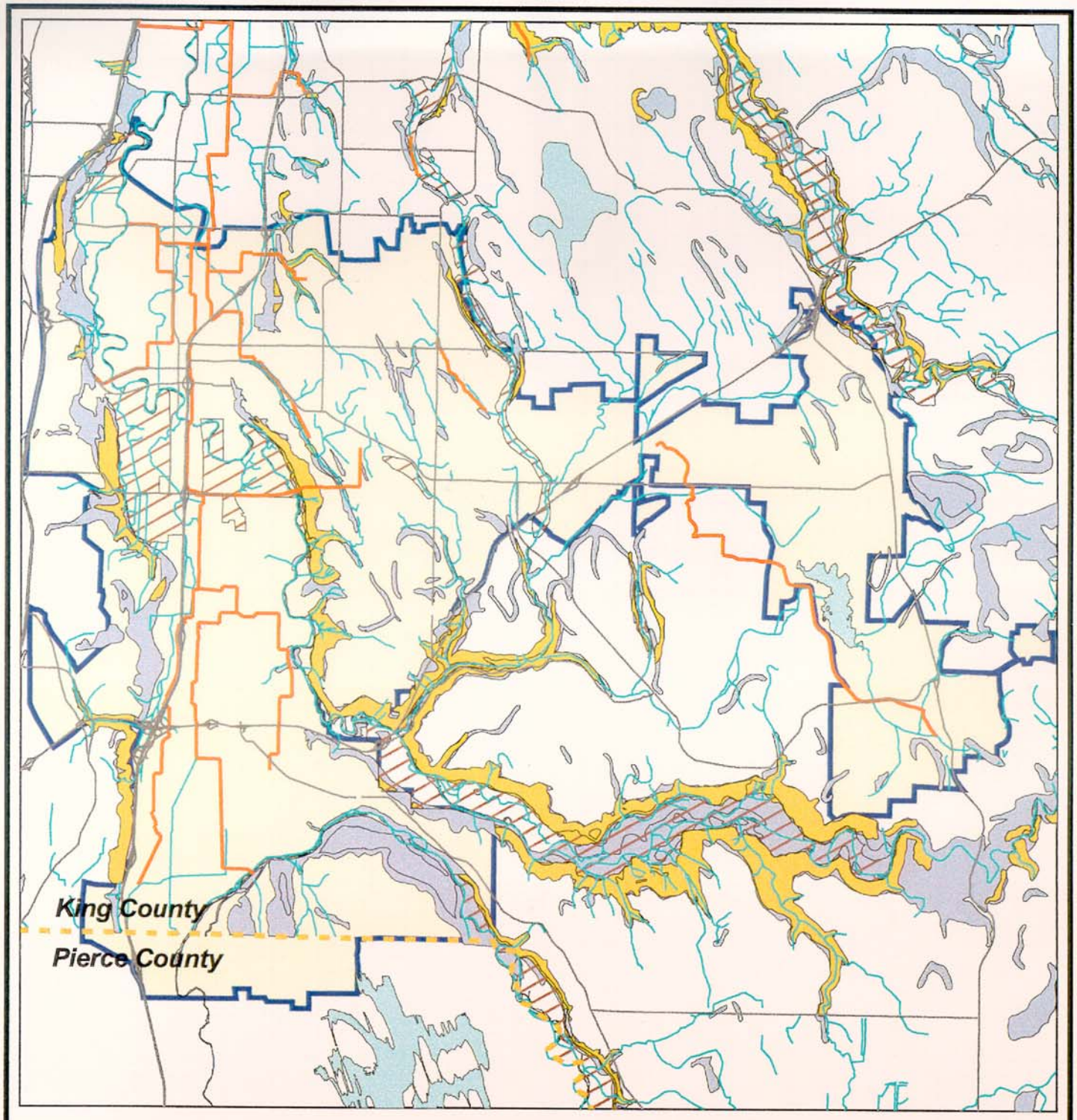

Figure 230 - 2
Geology and Soils in the MC/GR

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1 0 1 2 Miles

N W E S

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Legend

- County Boundaries
- Roads
- KC Conveyance Lines
- Streams
- Seismic Hazard Areas
- Slide Hazard Areas
- Erosion Areas
- MC/GR Area

SEISMIC HAZARDS

Seismic hazard areas are subject to severe risk of earthquake damage because of settlement or soil liquefaction. These conditions occur in areas underlain by soils with low cohesion and density, and are usually associated with a shallow groundwater table. When shaken by an earthquake, these soils can lose their ability to support loads. Loss of soil strength can also result in failure of the ground surface and damage to or collapse of structures supported in or on the soil. Loose, water-saturated materials are the most susceptible to ground failure due to earthquakes.

Seismic hazard areas are located throughout the planning area, primarily along major water bodies. The most notable areas include several large areas along and near Mill Creek and the Green River in Auburn; along much of Big Soos Creek; and south and west of the Cedar River in the Maple Valley area (see Figure 230-2). Much of the area east of the Green River has been classified as having a low or low to high liquefaction susceptibility. The majority of the area between the Green River and Mill Creek, however, has been identified as having a high liquefaction susceptibility (Gary Struthers Associates et al. 1998).

WATER FEATURES

Rivers, lakes, streams, wetlands and other surface water bodies and features are located throughout the MC/GR. The majority of the planning area is located in the Green River Watershed but also includes part of the northwest portion of the White River Watershed. Surface water features in the MC/GR are identified in Figure 230-3 and discussed briefly below.

SURFACE WATER BASINS AND STREAMS

The MC/GR is located within several King County surface water drainage basins, including the Black River, Mill Creek, White River, Middle Green River, Lower Green River, Soos Creek, Jenkins Creek, and Covington Creek basins (Figure 230-4). The primary rivers, streams, and creeks in the planning area are discussed below.

The Green River originates in the Cascade Mountains northeast of Mount Rainier, and flows west and north before emptying into Elliott Bay as the Duwamish River. Two major tributaries and ten small tributaries feed into the main river in the upper valley between Black Diamond and Auburn. The gradient is generally shallow in this stretch, dropping only 100 feet over this 16-mile section (WDF 1975). The "middle section" of the Green River runs primarily through eastern Auburn and north through Kent in the western half of the MC/GR. Big Soos Creek (see below) is the major tributary to the Green River along this stretch of the river.

The White River arcs through the southwest MC/GR, flowing from east to west through the Muckleshoot Indian Reservation on the east, through Auburn and the community of Stuck, then heading south through Pacific and into Pierce County to its confluence with the Puyallup River near Sumner. Originating on Mount Rainier, the White River is a glacial stream that has been

highly channelized and diked for flood control. Hillsides rise steeply to around 400 feet, especially along the northeast section of the river and then again a little farther to the south and west. Bowman Creek is the largest tributary to the White River in the planning area.

Mill Creek runs through the far western part of the MC/GR. The creek originates from Lake Doloff and Lake Geneva on the Mill Creek drainage basin's western plateau, west of the Green River valley and immediately west of the MC/GR. Mill Creek flows east from these lakes, down Peasley Canyon in Auburn, and then north through the valley floor into the Green River. The mainstem channel of Mill Creek is approximately 8.35 river miles long (Herrera 1997).

The Soos Creek system is located in the north-central and eastern areas of the MC/GR. The system is composed of over 60 miles of stream extending out in a fan shape from the hills east of Auburn and south of Renton between the Cedar River and Green River valleys. Big Soos Creek originates from springs and groundwater drainage in the hills 1.5 miles south of Renton. The creek drains south to where Covington Creek joins the system, then westward to its confluence with the Green River near SR 18.

Five major tributaries feed Big Soos Creek. Soosette Creek originates from springs and drainage runoff on the plateau between Lake Meridian and the town of Kent and steeply drains 5 miles south to Big Soos. Covington Creek originates on the plateau 2.5 miles east of Lake Sawyer and drains 9.5 miles southwest to Big Soos. Jenkins Creek is located in the central and northeast areas of the MC/GR. The creek starts at Lake Wilderness Park, Lake Lucerne, and Shadow Lake and drains 6.5 miles southwest to Big Soos near the Kent-Black Diamond road in the Berrydale community. Jenkins Creek is also fed by Cranmar Creek, a small creek that flows west from near the Elk Run Golf Course between Pipe Lake/Lake Lucerne and Lake Sawyer. Little Soos Creek flows south from Lake Youngs, located north of the MC/GR, for nearly 5 miles. Finally, an unnamed tributary originating in Kent flows southeast through Clark Lake and Lake Meridian and into Big Soos Creek, south of its convergence with Little Soos Creek near SR 18 (WDF 1975).

LAKES

Several large lakes are located within the central and eastern portions of MC/GR. Lake Meridian is located east of the Kent city limits and immediately north of the Kent-Kangley Road (SR 516). The lake is nearly 1 mile long, covers 150 acres and drains approximately 742 acres. The depth of the lake averages approximately 41 feet with a maximum depth of 90 feet. Recent water quality data indicate that Lake Meridian has low biological productivity (King County DNR 1998). The lake drains southwest toward Soos Creek. The lake has both park access (Lake Meridian Park) and boat launch facilities.

Pipe Lake and Lake Lucerne are located in the eastern MC/GR, north of the Kent-Kangley Road and west of Witte Road SE. Pipe Lake and Lake Lucerne are actually one body of water. Pipe Lake covers approximately 52 acres and drains approximately 314 acres. It has a mean depth of 27 feet and a maximum depth of 65 feet. Lake Lucerne covers approximately 16 acres and drains approximately 403 acres. It has a mean depth of 18 feet and a maximum depth of 37 feet.

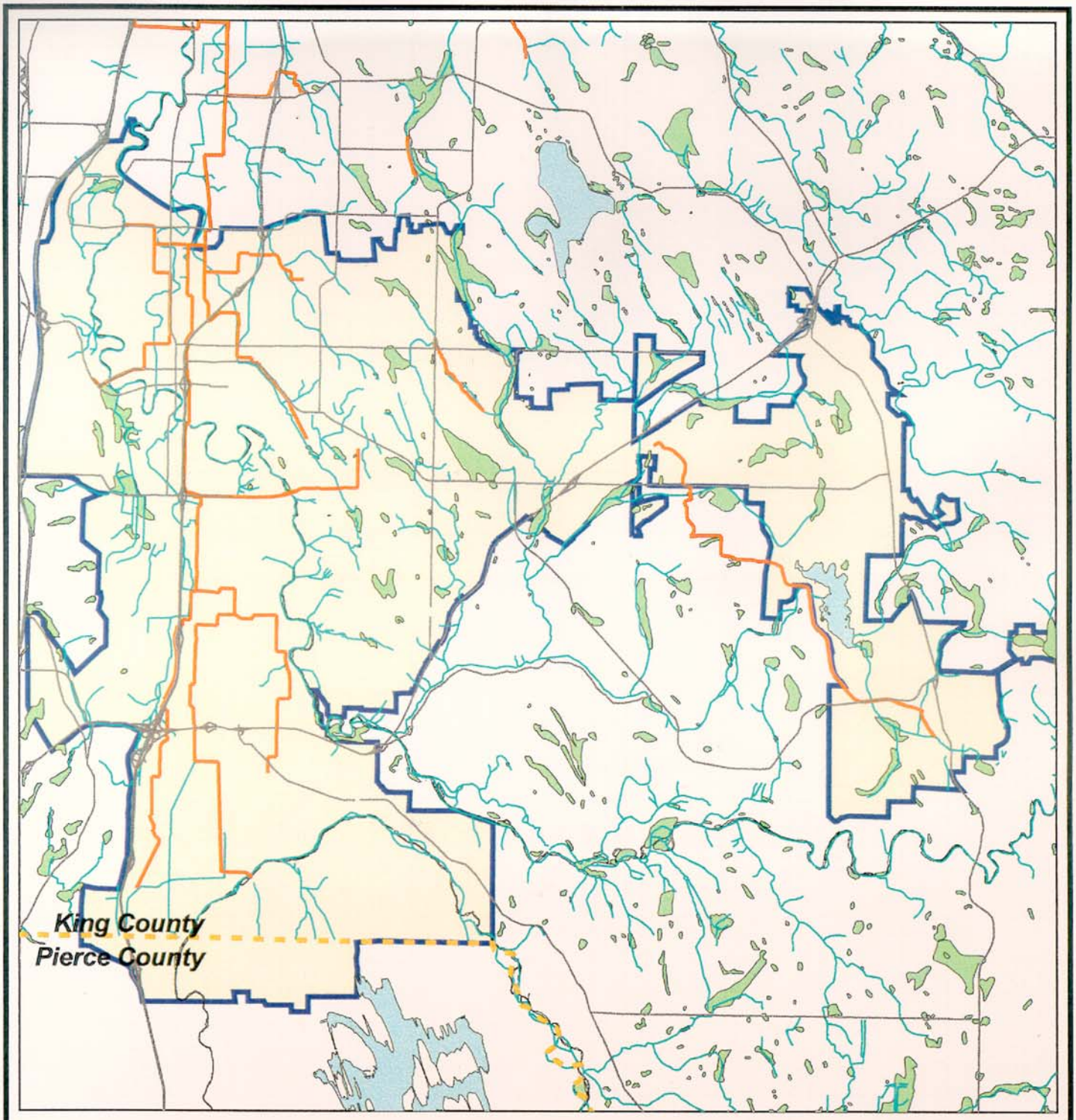

Figure 230 - 3
Surface Water and Wetlands in the MC/GR

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1 0 1 2 Miles

N W E S

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Legend
- County Boundary
- Roads
- KC Conveyance Lines
- Streams
- SAO Wetland
- MC/GR Area

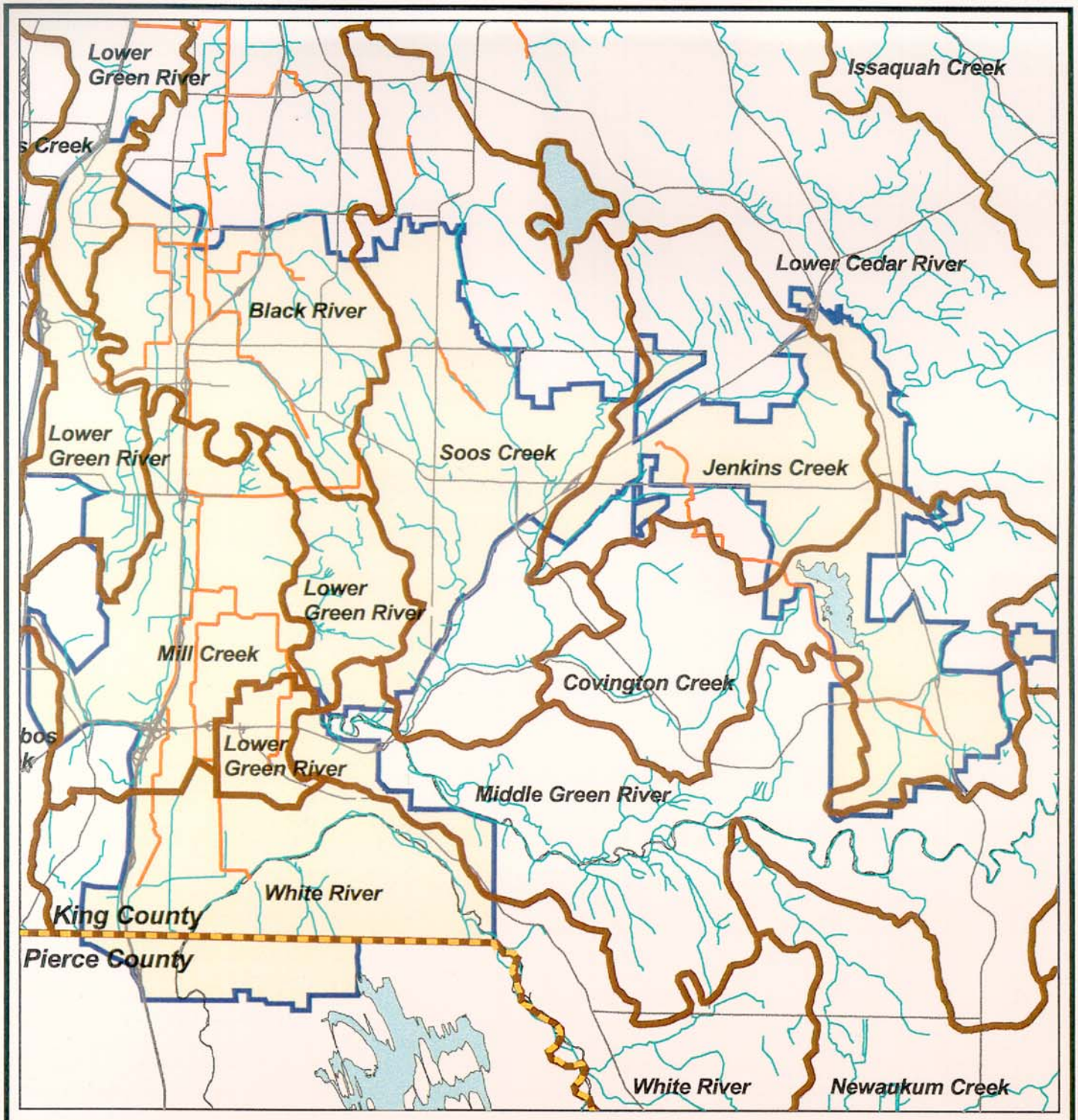

Figure 230 - 4
Stream Drainage Basins in the MC/GR

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Legend
- County Boundary
- Stream Drainage Basins
- Roads
- KC Conveyance Lines
- Streams
- MC/GR Area

King County
Department of Natural Resources

1 0 1 2 Miles

December 30, 1999

Both Pipe and Lucerne lakes have low biological productivity, but have shown some improvement in recent years (King County DNR 1998). The lakes are surrounded by residential development, especially to the south.

Lake Wilderness is a 69-acre lake located in the unincorporated Wilderness community south of Maple Valley, northeast of Pipe Lake/Lake Lucerne and west of the Maple Valley-Black Diamond Road (SR 169). The lake averages 21 feet deep with a maximum depth of 38 feet. The lake drains approximately 420 acres. Recent water quality data indicate that Lake Wilderness is characterized by a medium level of biological productivity (King County DNR 1998). King County's 108-acre Lake Wilderness Park is located along the northwest shore of the lake and has boat launch facilities.

The Lake Sawyer system is located in and around the city of Black Diamond. The system includes Ravensdale Lake, Ravensdale Creek, Rock Creek, Black Diamond Lake, Jones Lake, and smaller tributaries. Black Diamond Lake and Jones Lake drain into Rock Creek, which flows north into Lake Sawyer. Ravensdale Lake drains into Ravensdale Creek, which flows southwest into Lake Sawyer. Covering 279 acres, Lake Sawyer is the largest lake in the MC/GR. It has an average depth of 26 feet and a maximum depth of 58 feet. Its drainage basin includes 8,300 acres, most of which is in forest. Lake Sawyer exhibits a medium level of biological productivity (King County DNR 1998). Residences are located along most of Lake Sawyer's 7 miles of shoreline. The lake is used extensively for recreation, including fishing, boating, sailing, and swimming (Metro 1990). Lake Sawyer Park is located along the lake's western shore. The city of Black Diamond annexed Lake Sawyer and surrounding homes on January 1, 1998.

Several smaller lakes are also located in the planning area. White Lake is located on the Muckleshoot Indian Reservation, south of SR 18 and east of Harvey Road SE. Lake Jolie is located immediately west of Gary Grant Soos Creek Park in eastern Kent in the north-central planning area. Lake Marjorie, Mud Lake, Black Diamond Lake, and Jones Lake are located in Black Diamond in the southeasternmost area of the MC/GR. Black Diamond and Jones lakes are connected to Lake Sawyer through Rock Creek.

SHORELINES

Some streams and lakes in the MC/GR are designated as "shorelines of the state" (i.e., Class 1) under Washington's Shoreline Management Act (RCW 90.58) and King County and local shoreline master programs. These water bodies include the Green River, most of the White River, lower Big Soos Creek, part of Jenkins Creek, Lake Meridian, Pipe Lake/Lake Lucerne, Wilderness Lake, Lake Sawyer, and Jones Lake. Development within 100 feet of these shorelines is generally prohibited or severely restricted. Other water bodies in the MC/GR are considered Class 2, including Mill Creek, part of the White River, upper Big Soos Creek, Little Soos Creek, part of Jenkins Creek, Rock Creek, Mud Lake, and Black Diamond Lake. Development within 50 feet of Class 2 shorelines is prohibited; Class 2 waters known or thought to be salmon-bearing have a 100-foot buffer.

Any alteration of a shoreline of statewide significance can be difficult and must be consistent with each local jurisdiction's sensitive areas ordinance and shoreline master plan. Urban development along shorelines in the MC/GR vary widely; the largest concentrations of residential and commercial development are located on the west side of the Green River in Auburn; north of the White River in Pacific and Auburn; surrounding Lake Meridian; and south of Lake Lucerne.

FLOOD HAZARD AREAS

Flood hazard areas are those areas of King County subject to inundation by the 100-year flood. These are areas that have a 1-percent probability of inundation in any given year. Streams, lakes, wetlands, and closed depressions all have floodplains that may qualify as flood hazard areas (King County 1990). Development in flood hazard areas is restricted or prohibited depending on the type of flood area (e.g., flood fringes, zero-rise floodways, or FEMA floodways). Flood hazard areas in the MC/GR planning area are located along parts of Mill Creek; much of the Green River, including a large area southeast of the large oxbow east of SR 167; most of Big Soos Creek; Little Soos Creek; and lower Jenkins Creek (see Figure 230-1).

WETLANDS

Wetlands are unique environments comprised of diverse terrestrial and aquatic habitats. Biological habitat support refers to a wetland's provision of nesting, breeding, rearing, and feeding habitat for aquatic and terrestrial wildlife species. Wetlands and wetland systems within the MC/GR offer pockets of habitat for urban wildlife and wetland-dependent plant and animal species. A wetland's size, water quality, diversity of habitat, and habitat structure affect performance and function.

Building in wetlands and in established wetland buffers is restricted, and requires approvals and permits from the local jurisdiction and possibly the U.S. Army Corps of Engineers. A review of existing information, including the King County Sensitive Areas Map Folio and NWI wetland maps, indicates that wetlands are located throughout the MC/GR (see Figure 230-3). The map folio indicates that approximately 90 to 100 wetlands of various sizes are located in the unincorporated parts of the planning area, including the water bodies identified in the previous sections. The largest concentrations are located in the Soos Creek basin in the vicinity of Lake Meridian and along Big Soos Creek; NWI maps and recent studies conducted for specific projects in the planning area also indicate that many additional wetlands are also scattered throughout the planning area, especially along Mill Creek and SR 167 and in the Black Diamond area. The NWI maps and other studies will be consulted more closely when specific routes of conveyance pipes are identified for further study.

FISH AND WILDLIFE

The creeks and streams in the MC/GR provide wildlife corridors for small mammals, migratory waterfowl, perching birds, amphibians, snakes, and water-dependent species. Land use around some lowland creeks, such as Mill Creek, provide poor buffers because of surrounding livestock pastures, plowed agricultural fields, and major highways. Culverted sections of some of these streams through urban or other developed areas divide and fragment their use as migration corridors.

Federally and state threatened, endangered, priority, and other species of concern are present in King County and can be found in certain areas of the MC/GR. Fish species of concern include Chinook, coho, sockeye, chum, and pink salmon; steelhead trout, bull trout; and Dolly Varden. Kokanee, searun cutthroat trout, rainbow trout, and many other species of resident fish can also be found in streams and lakes throughout the planning area. The recent listing of certain Puget Sound area salmon and steelhead runs on the federal Endangered Species List now requires that most development around these water bodies be carefully planned and that detailed biological assessments identifying impacts on listed species and their habitat be conducted.

Amphibians of concern in the project area may include the Cascades frog, red-legged frog, tailed frog, Oregon spotted frog, western toad, Van Dyke's salamander, northwestern salamander, long-toed salamander, Pacific Giant salamander, Cascade torrent salamander, western redback salamander, and roughskin newt. Reptiles of concern include the western pond turtle. Birds of concern include the bald eagle, common loon, harlequin duck, great blue heron, osprey, and willow flycatcher. Mammals of concern include the northern water shrew and masked shrew (Seattle 1999). The occurrence in the MC/GR of species generally found in old growth forest areas, such as northern spotted owl, marbled murrelet, a variety of bat species, and others, is possible but not likely. The Washington Department of Fish and Wildlife's Priority Habitats and Species program and data will be consulted to more accurately determine locations of listed and priority species when specific conveyance routes are identified.

VEGETATION

Vegetation throughout the MC/GR varies considerably. Vegetation in the low-lying Green River valley in the western part of the planning area consists predominantly of grasses and deciduous trees associated with the lowlands and the more urbanized areas of Kent, Auburn, Pacific, and Algona. Despite development throughout much of the planning area, some highly vegetated areas still exist. The central and eastern parts of the MC/GR on the Soos Creek Plateau and into Black Diamond are generally a more forested mix of coniferous and deciduous trees. Covington Creek basin, for example, is still largely in second-growth forest with overhead canopy and streamside vegetation still intact. The forested areas provide excellent habitat for a variety of bird, mammal, amphibian, and reptile species. The cutting of vegetation and habitat, especially when associated with sensitive areas such as streams, wetlands, and erosion hazard areas, typically requires approvals from the county or city jurisdictions under their sensitive areas ordinances.

LAND USE AND GROWTH

This section describes existing and potential changes in land use practices and forecasted growth within the MC/GR. This assessment is based on forecasted changes in the population and the distribution of residential, commercial, and industrial development in the area. Planned sewerage conveyance systems are discussed in the comprehensive sewerage plans of the cities of Kent, Auburn, Black Diamond, and Pacific, and the Soos Creek Water and Sewer District (see Section 210 of this document). Other existing and proposed land use information is also derived from these documents and the King County Comprehensive Plan. Understanding these land use and growth areas within the MC/GR will help the County plan its sewer conveyance system requirements through the area. Current land use in the MC/GR is shown in Figure 230-5.

The Metropolitan King County Council established an Urban Growth Area (UGA) in the 1994 King County Comprehensive Plan and its 1995 amendments. The King County plan requires future growth and development to be confined to the UGA to limit urban sprawl, enhance open space, protect rural areas, and provide for more efficient use of human services, transportation, and utilities. The King County plan includes capital facilities and utilities elements that identify the county's regional wastewater conveyance and treatment system and facilities. The plan also identifies a review and approval process for sewer plans within the county. Each local service agency in the MC/GR (except for Algona) has developed and adopted sewer plans (or is incorporated as part of another LSA plan) in accordance with the King County Comprehensive Plan. Incorporated cities in the planning area—Kent, Auburn, Algona, Pacific, Covington, and Black Diamond—also have urban growth boundaries within which development must be contained.

The Puget Sound Regional Council (PSRC) prepares long-range population, household, and employment forecasts for the four-county Puget Sound region (King, Kitsap, Pierce, and Snohomish counties). These forecasts are prepared to ensure a general consistency with local comprehensive plans developed under GMA guidelines. Population in the region is expected to increase by nearly 1.2 million people between 1995 and 2020, a 25-year increase of approximately 39 percent, or 1.3 percent per year. The greatest growth is projected to occur in King County (an additional 472,673 residents). King County is projected to have about half of the total regional population in 2020.

Local population forecasting is done by first forecasting population, employment, and income for the Puget Sound region as a whole and then allocating these forecasts among small geographic areas, called forecast analysis zones (FAZs). FAZs generally approximate existing boundaries, such as municipal jurisdictions and community planning areas, and are therefore useful in helping predict growth in specific areas of the region. Expected growth in the MC/GR varies, but is substantial in some areas. Overall, FAZs in which the MC/GR is partially or completely located (Figure 230-6) are expected to see an additional 38,465 households (47 percent increase), 79,267 residents (35 percent increase), and 29,065 jobs (28 percent increase) between 1997 and 2020 (PSRC 1999). The largest household and population increases (as a percentage) between 1997 and 2020 are expected to occur in the Lake Tapps/Dieringer, Southwest Soos Creek, and

Algona/Pacific FAZs. Total employment percentages are expected to increase most in the Lake Tapps/Dieringer, Sumner, Southwest Soos Creek, Lake Youngs, Lake Meridian, and Kentridge FAZs. Current (1997) and projected household, population, and employment growth by FAZ in the MC/GR is shown below in Table 230-1.

Table 230-1. Current and Projected Household, Population, and Employment Growth by Forecast Analysis Zone in the MC/GR.

	Total Households			Total Population			Total Employment		
Forecast Analysis Zone	1997	2020	% Change	1997	2020	% Change	1997	2020	% Change
806 (Lake Tapps/ Dieringer)	4,890	9,924	103	14,996	29,052	94	1,190	2,945	147
900 (Sumner)	3,378	4,303	27	8,425	10,365	23	5,920	11,130	88
3030 (Lakeland)	9,439	12,175	29	27,686	32,301	17	5,522	6,755	22
3110 (Algona/Pacific)	2,576	4,452	73	7,000	11,073	58	3,469	4,248	22
3120 (Auburn South)	8,141	12,194	50	20,981	28,389	35	18,992	19,605	3
3310 (Black Diamond/ Lake Sawyer)	4,086	5,696	39	11,876	15,005	26	1,069	1,754	64
3320 (Covington/ Timberlane)	6,953	8,761	26	21,772	24,992	15	2,316	3,161	36
3413 (Lake Youngs)	2,159	3,361	56	6,243	8,834	42	663	1,638	147
3414 (Kentridge)	7,670	9,943	30	21,912	25,822	18	2,135	3,919	84
3425 (Lake Heights)	4,509	6,771	50	13,946	19,077	37	1,712	2,258	32
3426 (SW Soos Creek)	4,056	7,117	75	12,526	20,212	61	1,842	3,729	102
3427 (Lake Meridian)	5,436	8,145	50	15,900	21,739	37	2,606	4,893	88
3505 (Kent CBD/Kent Hill East)	13,190	20,073	52	30,981	43,374	40	13,274	18,782	41
3600 (Kent Industrial)	5,885	7,918	35	13,708	16,984	24	41,896	46,854	12
Total/Avg. Change	*82,368*	*120,833*	*47*	*227,952*	*307,219*	*35*	*102,606*	*131,671*	*28*

Source: Puget Sound Regional Council data, June 1999.

In addition to the FAZ data, other information provided by cities and sewer districts in the MC/GR planning area give an indication of expected growth and land use in their areas. The City of Auburn bases their land use and growth estimates on the 1992 King County Countywide Planning Policies. The City of Auburn estimated approximately 7,000 additional dwelling units and 11,000 additional jobs in the city between 1992 and 2012. According to Auburn's comprehensive plan released in 1995, developed land uses in the city represent about 70 percent of the city's total acreage (Auburn 1995). According to city planners, major areas of growth in Auburn include the city's northeast corner (the 277th Street/"Drive-In" area, where there are approximately 450 acres of vacant, developable land and an expected increase of 1,500 to 2,000 housing units by 2015; the Miles Sand and Gravel/White Lake area, where 500 to 1,000 new housing units are expected by 2015; and the Lakeland Hills/Terrace View Apartments area in Pierce County, where 3,500 new housing units are expected by 2015 (Sokol 1999 personal communication). Auburn has already begun the process of annexing the currently unincorporated Lee Hill area east of the city. This 5.5-square-mile area currently has approximately 9,000 residents and a total of 15,000 are expected over the next 10 years. City planners believe that the city will be completely built out by 2015 (Sokol 1999 personal communication).

The City of Kent generally relies on the latest PSRC data in estimating future growth in the city. The majority of Kent's growth may occur in the downtown urban center area (FAZ 3505), where

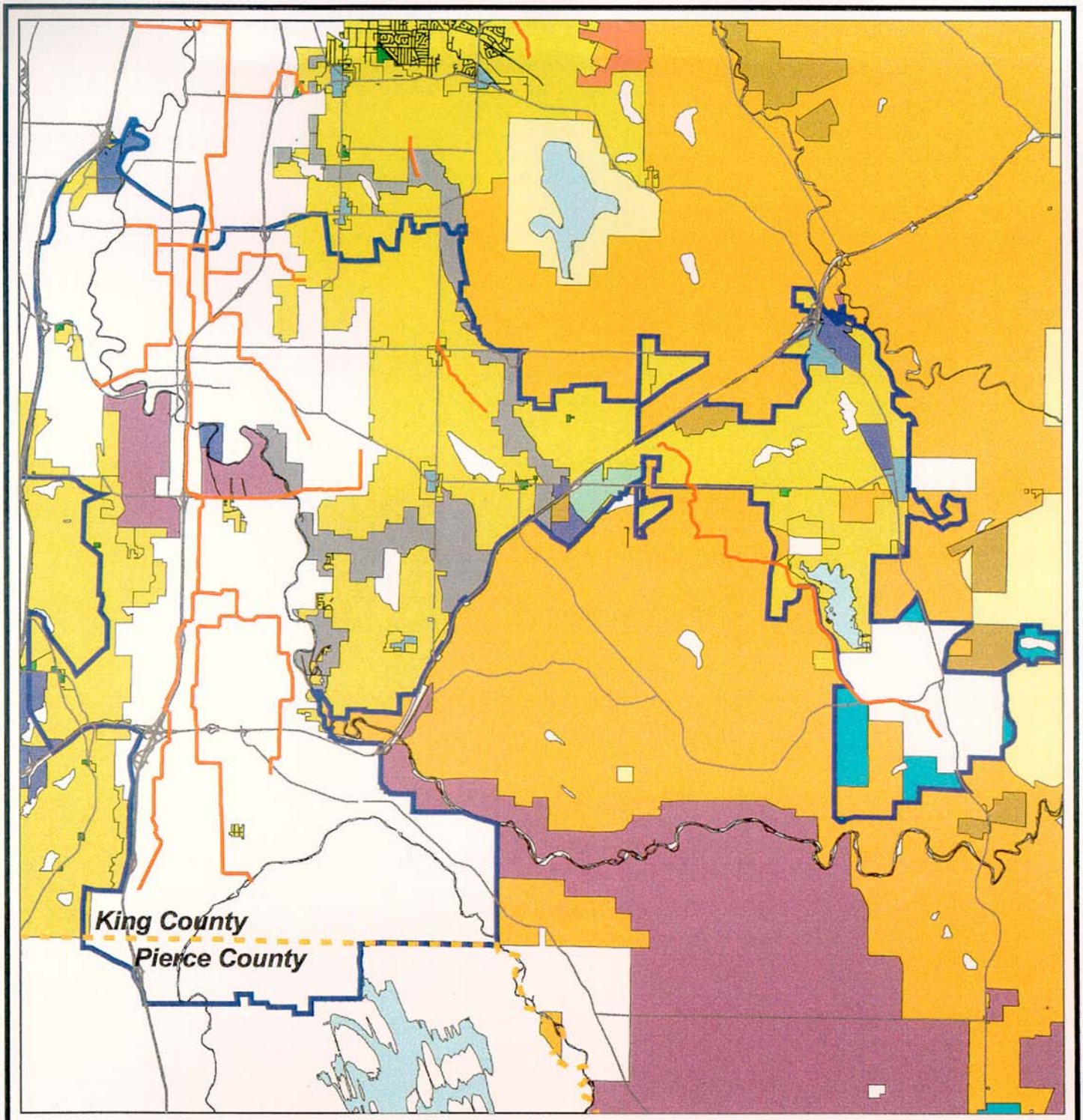

Figure 230 - 5
Current Land Use in the MC/GR

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King County
Department of Natural Resources

1 0 1 2 Miles

N W E S

December 30, 1999

Legend

- County Boundary
- KC Conveyance Lines
- MC/GR Boundary

Comp Plan Landuse

- activity center
- agriculture
- comm business center
- comm outside of centers
- forestry
- greenbelt
- industrial
- mining
- neigh business center
- open space
- rural residential
- rural city UGA
- urban residential
- urban planned devlop.

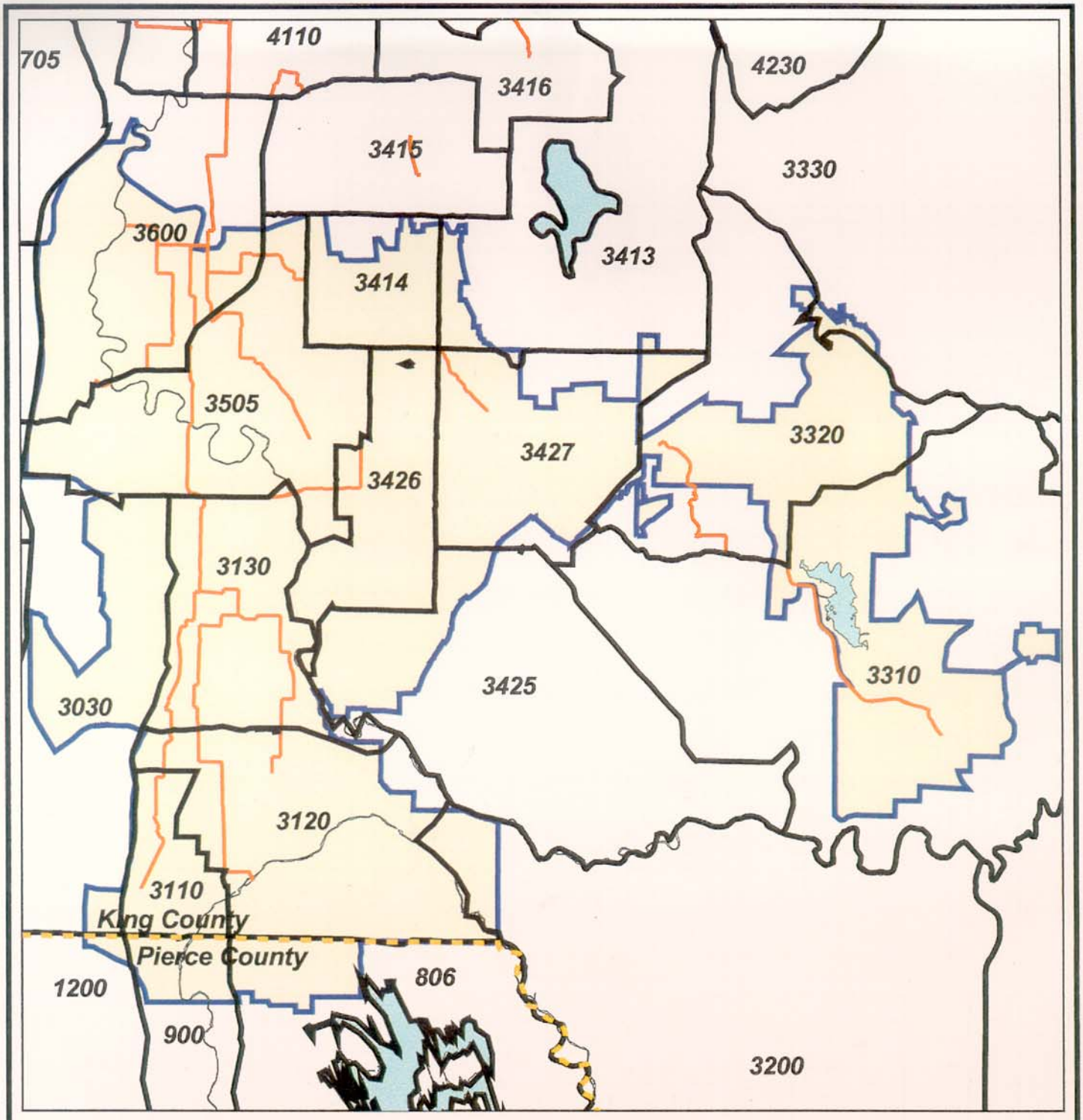

Figure 230 - 6
Forecast Analysis Zones in the MC/GR

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Legend
- County Boundary
- FAZ Boundary
- KC Conveyance Lines
- MC/GR Area

King County
Department of Natural Resources

1 0 1 2 Miles

December 30, 1999

1,000 new housing units are expected by 2015 (O'Neill 1999 personal communication). The City is planning a significant update of its comprehensive plan in the next 12 to 18 months, largely because of significant areas that have been annexed over the last several years. It is possible that Kent may be looking to annex the northeast part of its potential annexation area (PAA), that is the area north of 240th Street and east of 116th Avenue (O'Neill 1999 personal communication). This area would be in the MC/GR; however, no annexation plans are currently underway.

The city of Algona has little room for significant growth. With a population of just over 2,000, Algona expects primarily small numbers of single family homes to account for most of its future growth. The city is currently evaluating a developer's proposal for the last remaining large plat in the city; all remaining vacant property in Algona is short platted (Pullar 1999 personal communication). The city of Pacific (estimated population 5,700 in both King and Pierce counties) is somewhat larger than Algona and has more development potential. Based on a moderate-level estimate, Pacific could see a population of 8,000 by 2014. Most growth is expected to be in-fill, but there is a fair amount of potential commercial and industrial growth in the newly annexed, 400-acre section of the city located in Pierce County (Wise 1999 personal communication).

The Soos Creek sewer district planning area population is expected to increase from 62,887 in 1995 to 79,213 in 2015 or 26 percent (SCWSD 1996). The urban unincorporated portions of Soos Creek and Tahoma Raven Heights are expected to receive approximately 51 percent (12,000 to 15,000 employees) and 4.7 percent (1,100 to 1,400 employees) respectively of the total unincorporated King County area employment growth. The District will probably see an increase in some neighborhood businesses including retail stores offices and community services; regional businesses; and some industrial development (SCWSD 1996).

The newly incorporated City of Covington is currently preparing their first comprehensive plan. Covington has a current population of approximately 13,000. There is a substantial amount of growth expected around the Pipe Lake area. Almost all growth is expected to be residential and will take place as soon as potable water is available (expected soon). Large, undeveloped parcels are available on both sides of 204th Avenue SE and SE 256th Street. Growth is also expected east of 180th Avenue SE. Several multi-family developments have been proposed in the city. No further annexation is expected as the city is already pushed to the limits of its urban growth boundary (Korve 1999 personal communication).

Black Diamond has annexed some significant land over the last few years, including Lake Sawyer and the surrounding residential area northwest of the city and the area around Black Diamond Lake southwest of the city. The original city limits (pre-comprehensive plan and pre-annexation) includes residential areas primarily grouped in three general areas. Commercial development is also dispersed in three general areas, most notably along SR 169. A large part of city land is undeveloped, developed with low density, or not developed at the current potential allowed by zoning (Black Diamond 1995). Of the total 3,048 acres of pre-annexed Black Diamond, 1,074 acres are zoned for mineral extraction and forestry. Approximately 390 acres of this land are capable of conversion to other zone classifications, suggesting that residential, business park, and light industrial land use in Black Diamond may increase in the future. The recently annexed areas are nearly all residential.

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